PATENT & TRADEMARK OFFICE
DEC 09 2002
JC41

1646

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on the date shown below.

Dated: 12/4/02 Signature: Anna P Lucey (Anna P. Lucey)

Docket No.: CIBT-P06-120
(PATENT)

#57
1/13
2/13/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Toma et al.

Application No.: 09/991480 Group Art Unit: 1646

Filed: November 9, 2001 Examiner: Not Yet Assigned

For: MULTIPOTENT STEM CELLS FROM PERIPHERAL TISSUES AND USES THEREOF

RECEIVED
DEC 1 0 2002
TECH CENTER 1600/2900

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
Washington, DC 20231

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned.

A copy of each reference on PTO/SB/08 is attached.

Those patent(s) or publication(s) which are marked with an asterisk (*) in the attached form PTO/SB/08 (facsimile) are not supplied because they were previously cited by or submitted to the Office in a prior application no. 09/916,639 filed July 26, 2001 and relied upon in this application for an earlier filing date under 35 U.S.C. 120.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

Dated:

Respectfully submitted,

By 

David P. Halstead, Ph.D.
Registration No.: 44,735
ROPES & GRAY
One International Place
Boston, Massachusetts 02110-2624
(617) 951-7000
(617) 951-7050 (Fax)
Attorneys for Applicant

Form PTO/SB/08

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

(Use several sheets if necessary)

OIPE
DEC 09 2002
PATENT & TRADEMARK OFFICE

Docket Number (Optional)	Application Number
CIBT-P06-120	09/991,480
Applicant	
Toma et al.	
Filing Date	**Group Art Unit**
November 9, 2001	1646

RECEIVED
DEC 10 2002
TECH CENTER 1600/2900

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER		DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER		DATE	COUNTRY	CLASS	SUBCLASS	Translation YES	Translation NO
*	AA	WO 93/01275	1/21/93	PCT				
*	AB	WO 94/09119	4/28/94	PCT				
*	AC	WO 94/10292	5/11/94	PCT				
*	AD	WO 94/16718	8/4/94	PCT				
	AE	WO 95/12665	5/11/95	PCT				
*	AF	WO 95/13364	5/18/95	PCT				
	AG	WO 97/41208	11/6/97	PCT				
	AH	WO 99/56759	11/11/99	PCT				

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages Etc.)*

	AI	Anderson, D.J. Stem cells and transcription factors in the development of the mammalian neural crest. *FASEB J.* 8, 707-713 (July 1994).
	AJ	Arsenijevic, Y. & Weiss, S. Insulin-Like Growth Factor-I is a Differentiation Factor for Postmitotic CNS Stem Cell-Derived Neuronal Precursors: Distinct Actions from Those of Brain-Derived Neurotrophic Factor. *J. Neurosci.* 18, 2118-2128 (15 March 1998).
	AK	Arsenijevic, Y. et al. Insulin-Like Growth Factor-I is Necessary for Neural Stem Cell Proliferation and Demonstrates Distinct Actions of Epidermal Growth Factor and Fibroblast Growth Factor-2. *J. Neurosci.* 21, 7194-7202 (15 Sept. 2001).
	AL	Auerbach, J.M. et al. Transplanted CNS stem cells form functional synapses in vivo. *Eur. J. Neurosci.* 12, 1696-1704 (May 2000).
	AM	Avoli, M. et al. Pharmacology and Electrophysiology of a Synchronous Gaba-Mediated Potential in the Human Neocortex. *Neurosci.* 62, 655-666 (1994).
*	AN	Bamji, S. et al. Comparison of the Expression of a Talpha1:nlacZ Transgene and Talpha1 alpha-Tubulin mRNA in the Mature Central Nervous System. *J. Comp. Neurol.* 374, 52 (1996).
*	AO	Bellows, C.G. et al. Determination of Numbers of Osteoprogenitors present in Isolated Fetal Rat Calvaria Cells In Vitro. *Dev. Biol.* 133, 8-13 (1989).
	AP	Bjornson, C.R.R. et al. Turning Brain into Blood: A Hematopoietic Fate Adopted by Adult Neural Stem Cells in Vivo. *Science* 283, 534-537 (1999).

Form PTO/SB/08

INFORMATION DISCLOSURE CITATION IN AN APPLICATION
(Use several sheets if necessary)

OYPE
DEC 09 2002
PATENT & TRADEMARK OFFICE

Docket Number (Optional) CIBT-P06-120	Application Number 09/991,480
Applicant Toma et al.	
Filing Date November 9, 2001	Group Art Unit 1646

	AQ	Bruckenstein, D.A. & Higgins, D. Morphological Differentiation of Embryonic Rat Sympathetic Neurons in Tissue Culture. *Dev. Biol.* 128, 324-336 (1988).
	AR	Brustle, O. et al. Embryonic Stem Cell-Derived Glial Precursors: A Source of Myelinating Transplants. *Science* 285, 754-756 (30 July 1999).
*	AS	Burns, S. et al. A primate model of parkinsonism: Selective destruction of dopaminergic neurons in pars compacta of the substantia nigra by N-methyl-4-phenyl-1,2,3,6-tetra-hydropyridine. *PNAS*80, 4546-4550 (1983).
*	AT	Calof et al. Analysis of Neurogenesis in a Mammalian Neuroepithelium: Proliferation and Differentiation of an Olfactory Neuron Precusor in Vitro. *Neuron* 3, 315 (1989).
	AU	Cameron, H.A. & McKay, R. Stem cells and neutogenesis in the adult brain. *Curr. Opin. Neurobiol.* 8, 677-680 (Oct. 1998).
*	AV	Carlsson, A. et al. 3,4-Dihydroxyphenylalanine and 5-Hydroxytryptophan as Reserpine Antagonists. *Nature* 180, 1200 (1957).
	AW	Clarke, D.L. et al. Generalized Potential of Adult Neural Stem Cells. *Science* 288, 1660-1663 (2000).
	AX	Daadi, M. et al. Activin Co-operates with Fibroblast Growth Factor 2 to Regulate Tyrosine Hydroxylase Expression in the Basal Forebrain Ventricular Zone Progenitors. *Neurosci.* 86, 867-880 (Oct. 1998).
	AY	Daadi, M.M. & Weiss, S. Generation of Tyrosine Hydroxylase-Producing Neurons form Precursors of the Embryonic and Adult Forebrain. *J. Neurosci.* 19, 4484-4497 (June 1999).
*	AZ	Dunnet, S.B. et al. Nigral transplants in primate models of parkinsonism. *Intracereb. Transplant. Movem. Disord.*, O. Lindvall, et al., eds. Restorative Neurology 4, 27-51 (1991).
*	BA	Ehringer, H. et al. Verteilung von noradrenalin und dopamine (3-hydroxytyramin) im gehirn des menschen und ihr verhalten bei erkrankungen des extrapyramidalen systems. *Kllin. Wschr.* 38, 1236-1239 (1960).
*	BB	Fahn, S. Fetal-tissue Transplants in Parkinson's Disease. *N.E. J. Med.* 327, 1589-1590 (1992).
	BC	Ferrari, G. et al. Muscle Regeneration by Bone Marrow-Derived Myogenic Progenitors. *Science* 279, 1528-1530 (1998).
	BD	Forsberg-Nilsson, K. et al. Platelet-Derived Growth Factor Induces Chemotaxis of Neuroepithelial Stem Cells. *J. Neurosci. Res.* 53, 521-530 (Sept. 1998).
*	BE	Friachard et al. In vitro differentiation of embryonic stem cells into glial cells and functional neurons. *J. Cell. Sci.* 108, 3181-3185 (1995).
*	BF	Gage, F.H. et al. Survival and differentiation of adult neuronal progenitor cells transplanted to the adult brain. *PNAS* 92, 11879-11883 (1995).
*	BG	Gloster, A. et al. The T-alpha1 alpha-Tubulin Promoted Specific Gene Expression as a Function of Neuronal Growth and Regeneration in Transgenic Mice. *J. Neurosci.* 14, 7319-7330 (1994).

Form PTO/SB/08	Docket Number (Optional)	Application Number
INFORMATION DISCLOSURE CITATION IN AN APPLICATION *(Use several sheets if necessary)*	CIBT-P06-120	09/991,480
	Applicant: Toma et al.	
	Filing Date: November 9, 2001	Group Art Unit: 1646

OIPE DEC 09 2002 PATENT & TRADEMARK OFFICE

	BH	Greenwood, A.L. et al. Identification of dividing, determined sensory neuron precursors in the mammalian neural crest. *Development* 126, 3545-3559 (Aug. 1999).
	BI	Gussoni, E. et al. Dystrophin expression in the mdx mouse restored by stem cell transplantation. *Nature* 401, 390-394 (1999).
	BJ	Huard, J.M.T. et al. Adult Olfactory Epithelium Contains Multipotent Progenitors that Give Rise to Neurons and Non-Neural Cells. *J. Comp. Neurol.* 400, 469-486 (2 Nov. 1998).
*	BK	Kaufman, S.J. et al. Replicating myoblasts express a muscle-specific phenotype. *PNAS* 85, 9606-9610 (1988).
	BL	Keirstead, H.S. et al. Polysialylated Neural Cell Adhesion Molecule-Positive CNS Precursors Generate Both Oligodendrocytes and Schwann Cells to Remyelinate the CNS after Transplantation. *J. Neurosci.* 19, 7529-7536 (1999).
	BM	Kessler, P.D. & Byrne, B.J. Myoblast Cell Grafting into Heart Muscle: Cellular Biology and Potential Applications. *Ann. Rev. Physiol.* 61, 219-242 (1999).
	BN	LaBonne, C. & Bronner-Fraser, M. Induction and Patterning of the Neural Crest, a Stem Cell-Like Precursor Population. *J. Neurobiol.* 36, 175-189 (1998).
*	BO	Langston, J.W. et al. Chronic Parkinsonism in Humans Due to a Product of Meperidine-Analog Synthesis. *Science* 219, 979-980 (1983).
	BP	Lee, S.H. et al. Efficient generation of midbrain and hindbrain neurons from mouse embryonic stem cells. *Nat. Biotechnol.* 18, 675-679 (June 2000).
*	BQ	LeGal La Salle, G. et al. An Adenovirus Vector for Gene Transfer into Neurons and Glia in the Brain. *Science* 259, 988-990 (1993).
	BR	Lumelsky, N. et al. Differentiation of Embryonic Stem Cells to Insulin-Secreting Structures Similar to Pancreatic Islets. *Science* 292, 1389-1394 (18 May 2001).
	BS	Lundberg, C. et al. Survival, Integration, and Differentiation of Neural Stem Cell Lines after Transplantation to the Adult Rat Striatum. *Exp. Neurol.* 145, 342-360 (June 1997).
*	BT	Mayo, M.L. et al. Desmin expression during early mouse tongue morphogenesis. *Int. J. Dev. Biol.* 36, 255-263 (1992).
	BU	McKay, R. Stem Cells in the Central Nervous System. *Science* 276, 66-71 (4 April 1997).
	BV	McKay, R. Stem cells – hype and hope. *Nature* 406, 361-364 (27 July 2000).
	BW	Morrison, S.J. et al. Prospective Identification, Isolation by Flow Cytometry, and In Vivo Self-Renewal of Multipotent Mammalian Neural Crest Stem Cells. *Cell* 96, 737-749 (5 March 1999).
	BX	Morrison, S.J. et al. Transient Notch Activation Initiates an Irreversible Switch from Neurogenesis to Gliogenesis by Neural Crest Stem Cells. *Cell* 101, 499-510 (26 May 2000).

Form PTO/SB/08	Docket Number (Optional)	Application Number
INFORMATION DISCLOSURE CITATION IN AN APPLICATION *(Use several sheets if necessary)*	CIBT-P06-120	09/991,480
	Applicant Toma et al.	
	Filing Date November 9, 2001	Group Art Unit 1646

OIPE JC14
DEC 09 2002
PATENT & TRADEMARK OFFICE

	BY	Morshead, C.M. et al. Neural Stem Cells in the Adult Mammalian Forebrain: A Relatively Quiescent Subpopulation of Subependymal Cells. *Neuron* 13, 1071-1082 (Nov. 1994).
	BZ	Mujtaba, T. et al. A Common Neural Progenitor for the CNS and PNS. *Dev. Biol.* 200, 1-15 (1998).
	CA	Orlic, D. et al. Bone marrow cells regenerate infarcted myocardium. *Nature* 410, 701-705 (5 April 2001).
*	CB	Ourednik, v. et al. Developmental Biology: Frontiers for Clinical Genetics. *Clin. Genet.* 56, 267-278 (1999).
*	CC	Peel, A.L. & Feldman, D.H. Co-localization of glial and neuronal markers in RGF-generated cultures of pluripotent CNS stem cells. *Society Neurosci.* 21, 285:122.6 (1995).
	CD	Pereira, R.F. et al. Cultured adherent cells from marrow can serve as long-lasting precursor cells for bone, cartilage, and lung in irradiated mice. *PNAS* 92, 4857-4861 (1995).
	CE	Peterson, B.E. et al. Bone Marrow as a Potential Source of Hepatic Oval Cells. *Science* 284, 1168-1170 (1999).
	CF	Pittenger, M.F. et al. Multilineage Potential of Adult Human Mesenchymal Stem Cells. *Science* 284, 143-147 (1999).
	CG	Prockop, D.J. Marrow Stromal Cells as Stem Cells for Nonhematopoietic Tissues. *Science* 276, 71-74 (1997).
	CH	Represa, A. et al. EGF-responsive neural stem cells are a transient population in the developing mouse spinal cord. *Eur. J. Neurosci.* 14, 452-462 (Aug. 2001).
*	CI	Reynolds, B.A. & Weiss, S. Generation of Neurons and Astrocytes from Isolated Cells of the Adult Mammalian Central Nervous System. *Science* 255, 1707-1710 (1992).
	CJ	Reynolds, B.A. & Weiss, S. Clonal and Population Analyses Demonstrate that an EGF-Responsive Mammalian Embryonic CNS Precursor is a Stem Cell. *Dev. Biol.* 175, 1-13 (10 April 1996).
	CK	Rietze, R. et al. Mitotically Active Cells that Generate Neurons and Astrocytes are Present in Multiple Regions of the Adult Mouse Hippocampus. *J. Comp. Neurol.* 424, 397-408 (28 Aug. 2000).
	CL	Sanchez-Pernaute, R. et al. In Vitro Generation and Transplantation of Precursor-Derived Human Dopamine Neurons. *J. Neurosci. Res.* 65, 284-288 (15 Aug. 2001).
*	CM	Schubert, D. et al. Ontogeny of electrically excitable cells in cultured olfactory epithelium. *PNAS* 82, 7782-7786 (1985).
	CN	Shah, N.M. et al. Glial Growth Factor Restricts Mammalian Neural Crest Stem Cells to a Glial Fate. *Cell* 77, 349-360 (6 May 1994).
	CO	Shimazaki, T. et al. The Ciliary Neurotrophic Factor/Leukemia Inhibitory Factor/gp130 Receptor Complex Operates in the Maintenance of Mammalian Forebrian Neural Stem Cells. *J. Neurosci.* 21, 7642-7653 (1 Oct. 2001).

Form PTO/SB/08 **INFORMATION DISCLOSURE CITATION IN AN APPLICATION** *(Use several sheets if necessary)*		Docket Number (Optional) CIBT-P06-120	Application Number 09/991,480
		Applicant Toma et al.	
		Filing Date November 9, 2001	Group Art Unit 1646

OIPE DEC 09 2002 PATENT & TRADEMARK OFFICE

	CP	Sieber-Blum, M. Factors Controlling Lineage Specification in the Neural Crest. *Intl. Rev. Cytol.* 197, 1-33 (2000).
*	CQ	Slack, R.S. & Miller, F.D. Viral vectors for modulating gene expression in neurons. *Curr. Opin. Neural Biol.* 6, 576-583 (1996).
*	CR	Slack, R.S. et al. Adenovirus-mediated Gene Transfer of the Tumor Suppressor, p53, Induces Apoptosis in Postmitotic Neurons. *J. Cell. Biol.* 135, 1085-1096 (1996).
*	CS	Soriano, E. et al. Simultaneous Immunocytochemical Visualization of Bromodeoxyuridine and Neural Tissue Antigens. *J. Histochem. Cytochem.* 39, 255-263 (1991).
*	CT	Sosnowski, E. et al. Chemical traumatization of adult mouse olfactory epithelium in situ stimulates growth and differentiation of olfactory nerves in vitro. *Brain Res.* 702, 37-48 (1995).
	CU	Stemple, D.L. & Anderson, D.J. Isolation of a Stem Cell for Neurons and Glia from the Mammalian Neural Crest. *Cell* 71, 973-985 (11 Dec. 1992).
	CV	Studer, L. et al. Transplantation of expanded mesencephalic precursors leads to recovery in parkinsonian rats. *Nat. Neurosci.* 1, 290-295 (August 1998).
	CW	Taylor, G. et al. Involvement of Follicular Stem Cells in Forming Not Only the Follicle but Also the Epidermis. *Cell* 102, 451-461 (18 Aug. 2000).
	CX	Tsai, R.Y.L. & McKay, R.D.G. Cell Contact Regulates Fate Choice by Cortical Stem Cells. *J. Neurosci.* 20, 3725-3735 (2000).
*	CY	Ungerstedt, U. et al. Quantitative Recording of Rotational Behavior in Rats After 6-Hydroxy-Dopamine Lesions of the Nigrostriatal Dopamine System. *Brain Res.* 24, 485-493 (1970).
	CZ	van der Kooy, D. & Weiss, S. Why Stem Cells? *Science* 287, 1439-1441 (25 Feb. 2000).
	DA	Vescovi, A.L. et al. bFGF Regulates the Proliferative Fate of Unipotent (Neuronal) and Bipotent (Neuronal/Astroglial) EGF-Generated CNS Progenitor Cells. *Neuron* 11, 951-966 (Nov. 1993).
	DB	Weiss, S. Pathways for neural stem cell biology and repair. *Nat. Biotechnol.* 17, 850-851 (Sept. 1999).
*	DC	Weiss, S. et al. Is there a neural stem cell in the mammalian forebrain? *Trends Neurosci.* 19, 387-393 (Sept. 1996).
	DD	Weiss, S. et al. Multipotent CNS Stem Cells Are Present in the Adult Mammalian Spinal Cord and Ventricular Neuroaxis. *J. Neurosci.* 16, 7599-7609 (1 Dec. 1996).
	DE	White, P.M. et al. Neural Crest Stem Cells Undergo Cell-Intrinsic Developmental Changes in Sensitivity to Instructive Differentiation Signals. *Neuron* 29, 57-71 (Jan. 2001).
*	DF	Widner, H. et al. Bilateral fetal mesencephalic grafting in two patients with parkinsonism induced by 1-methyl-4-phenyl-1,2-3,6-tetrahydropyridine (MPTP). *N.E. J. Med.* 327, 1556-1563 (1993).

Form PTO/SB/08	Docket Number (Optional)	Application Number
INFORMATION DISCLOSURE CITATION IN AN APPLICATION *(Use several sheets if necessary)*	CIBT-P06-120	09/991,480
	Applicant: Toma et al.	
	Filing Date: November 9, 2001	Group Art Unit: 1646

OIPE DEC 09 2002 PATENT & TRADEMARK OFFICE

*	DG	Winkler, C. et al. EGF-responsive neural progenitor cells, survive, migrate and differentiate after transplantation into the adult rat striatum. *Society for Neurosci.* 21, 2029:796.19 (1995).
	DH	Wohl, C.A. & Weiss, S. Retinoic Acid Enhances Neuronal Proliferation and Astroglial Differentiation in Cultures of CNS Stem Cell-Derived Precursors. *J. Neurobiol.* 37, 281-290 (5 Nov. 1998).

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERERCE

RECEIVED
DEC 1 0 2002
TECH CENTER 1600/2900